

**REMARKS/ARGUMENTS**

Reconsideration of this application and entry of this Amendment are requested. Claims 7, 8, 11 and 12 will be active in the application subsequent to entry of this Amendment.

In order to advance prosecution and better define the invention, applicants propose amending claims 7, 8, 11 and 12 in two key aspects: (1) defining the raw material to be reused for a processed cheese or cheese food as one which does not cause an increase in viscosity and (2) by further specifying the processing conditions in each of independent claims 7, 8, 11 and 12 as in previous claims 9 and 10, claims which the examiner has already examined and addressed in the current Official Action.

Support for the amendment "which does not cause a viscosity increase" is as follows: Specification, page 31, lines 12 to 13, "The food material of this invention does not cause the viscosity increase after heating and melting". Also, specification, page 31, lines 19 to 21, "Although the 'processed cheese-like food' is mixed in the cheese-like food of this invention according to the method of producing the cheese-like food, the viscosity increase after heating and melting is suppressed". Further, specification, page 2, lines 12 to 16, "In this invention, 'cheese-like food' refers to a processed food including cheese as one component thereof, and examples thereof include ... as well as the processed cheese and the cheese food."

The above amendments are made in order to clarify the previous claims by limiting the claims to include the phrases recited in previous claims 9 and 10. Therefore, the amendments do not add a new matter or raise new issues necessitating new examination or further search.

The sole issue raised in the outstanding Official Action is a single prior art-based rejection. Claims 7-12 are rejected under 35 USC §103(a) as being unpatentable over JP9154485 or JP9103242 in view of Fontenille (newly cited).

Before addressing the deficiencies in each of the citations as well as the lack of motivation to combine them, it is appropriate to review applicants' contribution to the art and objectives to which their disclosure is directed. The problem to be solved by the invention of the present application is as follows: Conventionally, since "a processed cheese or a cheese food which is once processed by an emulsification treatment" has (i) a property of increasing viscosity, it could not easily be used as a material for another processed cheese or cheese food. The present invention is intended to overcome the problem and provide a means to transfer (reuse) such a processed cheese or a cheese food to "a raw material to be reused for a processed cheese or a cheese food".

The characteristic features of the present invention as defined in the above amended claims are: (ii) The "processed cheese or a cheese food which is once processed by an emulsification treatment" is subjected to a heating and melting treatment at at least 120°C. (iii) Thereafter, it is subjected to a "rapid cooling treatment carried out by cooling to 10°C or less within 5 hours after the heating and melting treatment".

These features provide the following: (iv) The thus obtained "processed cheese or cheese food (first) which is once processed by an emulsification treatment" can be blended with another processed cheese or cheese food (second), with suppressed viscosity increase during an emulsification treatment in a later step, thus a third processed cheese or cheese food can be produced in stable steps, i.e. without changing the heating conditions and processing time (page 31, lines 20 to 24).

Thus, the features added to the claims include (a) a "rapid cooling treatment" is carried out, and (b) the requirement that the "rapid cooling treatment" is "carried out by cooling to 10°C or less within 5 hours after the heating and melting treatment" (as described in (iii)), and (c) viscosity increase is suppressed after blending the thus treated product (heated then rapidly cooled) with another processed cheese or cheese food and subjection to emulsification treatment (as described in (iv)).

The relationship between the feature (iii) and the effect (iv) is demonstrated in "Experiment 2" on pages 18 to 20 and Table 2 on page 20 of the specification of the present application.

Thus, the present invention solved the problem of the above (i), i.e., to make "a processed cheese or a cheese food which is once processed by an emulsification treatment" which has a property of increasing viscosity, making the processed cheese or cheese food difficult to be used as a material for another process cheese or cheese food. The present invention makes it possible to reuse it as a raw material for another processed cheese or a cheese food and to be blended with the another processed cheese.

JP9154485 discloses a process for producing a low fat process cheese by thermally melting raw materials comprising meltable salt and an O/W emulsifier (Abstract). JP9103242 discloses a method of producing a processed cheese by thermally melting a raw material comprising a meltable salt and an emulsifier to a maximum temperature of  $\geq 75^{\circ}\text{C}$  and then cooling it from the maximum temperature reached to  $60^{\circ}\text{C}$  at least over 20 min. and also to  $40^{\circ}\text{C}$  at least over 60 min. (Abstract).

However, both JP9154485 and JP9103242 disclose merely a method of preparing processed cheese. They simply disclose a general process of preparation of a processed cheese using a natural cheese as a starting raw material (note that a natural cheese is a cheese that is not yet subjected to an emulsification treatment), adding thereto submaterials such as an emulsifier, and subjecting them to an emulsifying treatment to produce a processed cheese.

Both of these documents have different objectives from that of the present invention. The problem to be solved by the inventions of the JP9154485 and JP 9103242 is to provide a processed cheese which is good in meltability in the mouth or excellent in hot meltability. However, neither JP9154485 nor JP9103242 discloses a method of preparing a processed cheese using "a raw material to be reused for a processed cheese or a cheese food" as a starting material. That is to say, JP9154485 and JP9103242 do not disclose nor suggest that "a processed cheese or a cheese food which is once processed by

an emulsification treatment" has been difficult to reuse as a material for another process cheese or cheese food, nor do they provide a solution for how to transfer a conventional processed cheese or cheese food to "a raw material to be reused for a processed cheese or a cheese food".

Thus, the problems disclosed in and addressed by JP9154485 and JP9103242 are completely different from that of the present application. For this reason alone neither of these citations are pertinent to applicants' claims.

With regard to cooling conditions, JP9103242 discloses "the resultant blend is cooled from the maximum temperature reached to 60°C at least over 20 min. and also to 40°C at least over 60 min." (Abstract). JP9154485 discloses cooling as a condition "the raw materials are thermally melted, filled in a mold and subsequently cooled." (Abstract). They do not disclose cooling the melted cheese to 10°C, nor how to cool to 10°C.

Applicants' claims, as above amended, all require after heating and melting treatment, the product is subjected to a "rapid cooling treatment carried out by cooling to 10°C or less within 5 ours after the heating and melting treatment" as discussed in (iii) above.

In the present application, it is important to cool the processed cheese or a cheese food, which has been subjected to heating and melting treatment, to 10°C or less within 5 hours after the hearing and melting treatment, as is shown in Experiment 2 on pages 18 to 20 and Table 2 on page 20 of the specification of the present application. While it is true that JP9103242 discloses the time of cooling the cheese to 40°C it does not disclose cooling to 10°C.

Applicants have found that if a processed cheese or a cheese food has been subjected to heating and melting treatment at at least 120°C is cooled to 40°C at 60 min., and is slowly cooled to 10°C in more than 5 hours, it will not give the effect of the present application.

Thus, the cooling conditions specified in (iii) of the present application are completely different from those of JP9154485 and JP9103242, and the disclosure of JP9154485 and JP9103242 does not render applicants' process obvious to a person having ordinary skill in the art, nor is it conventional or well known in the art.

In addition, the cooling conditions specified in JP9154485 and JP9103242 relate only to a first emulsification treatment of a raw material natural cheese.

In contrast, the present application uses an already prepared processed cheese or cheese food as a starting material (much like the product of both of the references), by subjecting the starting material to a second heating and melting treatment at at least 120°C and then cooling the product as specified in (iii). Cooling condition (iii) is the cooling condition after the second heating and melting treatment. Therefore, cooling condition (iii) of the present application is essentially completely different from the cooling conditions of JP9154485 and JP9103242.

Not only is applicants' claimed process different from the art, significantly different products result. As discussed above, the characteristic features of the present application are (ii) the "processed cheese or a cheese food which is once processed by an emulsification treatment" is subjected to heating and melting treatment at at least 120°C, and (iii) thereafter, it is subjected to "rapid cooling treatment carried out by cooling to 10°C or less within 5 hours after the heating and melting treatment." Through these features, the thus-obtained "processed cheese or cheese food (first) which is once processed by an emulsification treatment" can be blended to another processed cheese or cheese food (second), with suppressed viscosity increase during an emulsification treatment in a later step, and thus a third processed cheese or cheese food can be produced in stable steps, i.e., without changing heating conditions and processing time (page 31, lines 20 to 24).

This effect is not disclosed nor suggested in JP9154485 and JP9103242, and would not be obvious to a person having ordinary skill in the art.

The examiner states newly cited "Fontenille (US 6,551,637 PCT published November 25, 1999) discloses the conventional use of reused cheese (see Example 1)".

In fact, Fontenille is concerned with a much different, more complex product. Fontenille discloses a process for producing composite cheese products having an external cheese shell and an internal filling.

The object of Fontenille's disclosure was achieved by adapting the co-metering and co-molding technique described in FR-A-2,650,484 to a processed cheese paste for the production of the external shell, and by taking advantage of the specific properties of processed cheese, in particular their creaming capacity which allows the passage from the sol state to the gel state. (column 2, lines 51-57).

Thus, the implementation of Fontenille's process is based on the use of the specific properties of processed cheese, in particular its capacity to "cream" allowing the passage from the SOL state to a GEL state. (column 3, lines 36-39).

The technique disclosed by Fontenille is a process for manufacturing a composite cheese product utilizing "creaming" which is a property of a processed cheese. The "creaming" is a property of a processed cheese exhibited when the processed cheese transfers from a SOL state to a GEL state.

Further, regarding the "creaming", Fontenille explains the expression creaming capacity is understood to mean a property of processed cheese to thicken under the action of the double phenomenon of: peptization of the proteins allowing the hydration of the chains and resulting in the swelling of the medium and in the increase in viscosity; and insertion of the Ca pyrophosphates formed during the heat treatment between the protein chains in order to form inter- and intraprotein ionic bonds causing the gelling of the network. (column 3, lines 3-12).

Thus, "creaming" means the viscosity of the processed cheese increases when it is heated. Thus, Fontenille discloses a technique of producing a composite cheese product utilizing the characteristic of viscosity increase of the processed cheese.

In contrast to Fontenille, the present invention *suppresses* the property of processed cheese to increase in viscosity and makes it possible to reuse it for the processed cheese or cheese food.

Generally, since processed cheese has a viscosity increase property, even if it is, as a raw material, blended with a processed cheese or a cheese food, it causes a viscosity increase during the subsequent emulsification treatment.

Since the present invention includes solving the problem of suppressing a viscosity increase in an emulsification treatment, the present invention solves a completely different problem to that of Fontenille. Thus, the present invention solves a problem which Fontenille completely did not expect.

Consequently, Fontenille discloses no suggestion or motivation necessary to attain the present application. Further, the examiner has not established a suggestion it be combined with JP9154485 or JP9103242. In fact, Fontenille teaches the perfect opposite of the present application.

It is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion, or motivation to lead one of ordinary skill in the art to combine those references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617-18 (Fed. Cir. 1999).

Thus, the mere fact that references can be combined or modified (and Applicants believe they cannot be) does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. Hence, the Examiner's attempt to combine the cited references alone without any suggestion in the references of the desirability of the modification is improper and should be withdrawn.

In conclusion, even if combined JP9154485, JP9103242 and Fontenille do not disclose nor suggest the above problem solved, features and effects of the present application. Further, none of them disclose any suggestion or motivation leading to the present application, or disclose a suggestion of combining each of them. Moreover,

Fontenille teaches the direct opposite of the present application. Thus, the present invention cannot be easily conceived from JP9154485, JP9103242 and Fontenille, and is not obvious to a person having ordinary skill in the art.

The present application makes it possible to reuse a pre-cooked cheese in a factory for manufacturing a processed cheese or cheese food, contributes to an increase of yield, and makes it possible to operate the factory in stable manner (without changing heating condition and processing time).

For the above reasons it is respectfully submitted that claims 7, 8 and 11 and 12 define patentable subject matter. Reconsideration of this application, entry of this Amendment and favorable action are solicited.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: \_\_\_\_\_



Arthur R. Crawford  
Reg. No. 25,327

ARC:eaw  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100